

Docket No. 338520-5174  
US Appln. No. 10/008,509

### REMARKS

Claims 1-3, 4-16, and 18-24 are currently pending in this application. Claims 1 and 16 have been amended. No new matter has been added. Support for the amendments can be found on page 9, line 15 through page 10, line 3 and on page 11, lines 3-10 of the specification. These passages describe in detail the mechanism for variably tightening the cable of the segmented arm of the present invention.

The following remarks put the pending claims in condition for allowance. Applicants respectfully request reconsideration and the timely allowance of the pending claims.

#### **35 U.S.C. § 103(a) Rejections**

##### **35 USC § 103(a) Rejection over the Combination of Sherts et al. and Gannoe et al.**

Claims 1-3, 5, 9-16, and 20-24 stand rejected under 35 U.S.C. 103(a) for allegedly being obvious over Gannoe et al., U.S. Pat. App. Pub. US 2002/0077532, (hereinafter "Gannoe") in view of Sherts et al., U.S. Pat. 5,947,896, (hereinafter "Sherts").

Claims 1-3, 5, 9, 10, 14, 16, 20, and 23 stand rejected under 35 U.S.C. 103(a) for allegedly being obvious over Sherts et al., U.S. Pat. 5,947,896, (hereinafter "Sherts") in view of Gannoe et al., U.S. Pat. App. Pub. US 2002/0077532, (hereinafter "Gannoe").

Applicants respectfully traverse these rejections. The claimed invention, as amended, recites a segmented arm apparatus comprising:

- an articulating arm having a plurality of segments, each segment of the same size and shape...each segment being formed of a material with high stiffness coated with a high friction plating material...;
- a cable extending through each segment; and
- a manual device for variably tightening the cable thereby causing the mating segments to be brought into tight frictional engagement and compressing the plating material...

The manual tightening device for variably tensioning the cable of the present invention is described on page 11, lines 3-8 of the specification.

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By manually rotating the adjustment knob 54 in a clockwise direction (looking distally from the knob toward the stabilization device), a pulling force is exerted on the cable 18, causing the cable to be placed under tension and thereby tightened. By tightening the cable, the segments 16 of the articulating arm 14 become locked together as a result of frictional forces exerted between connected segments.

Gannoe teaches a segmented arm comprising a plurality of segments, a cable extending through each segment, and a device for locking the cable. Gannoe fails to teach or suggest a segmented arm wherein each segment is of the same size and shape. This is illustrated in Fig. 16, wherein segmented arm 204 is shown having segments of a smaller size at the distal end and segments of a larger size at the proximal end. Gannoe further fails to teach or suggest a manual device for variably tightening the cable. The actuator 212 is only capable of locking cable 208 into a locked position with a single amount of tension applied to cable 208. Furthermore, the actuator 212 is biased to a locked position such that force must be applied to actuator 212 in order to release the locked mechanism, slacken the tension in the cable and allow movement of the segmented arm (see paragraph [0089]). Thus, the device of Gannoe functions in a completely different manner compared to the present invention, wherein tension can be increased or decreased to a desired amount via a manual tightening device. Gannoe further fails to teach or suggest wherein the tightening of the cable compresses the high friction plating material. Indeed, Gannoe actually teaches away from this limitation. Gannoe teaches positioning friction enhancing layer 222 between adjacent links 206 in segmented arm 204. Gannoe further teaches that by placing layer 222 on the convex side 220 of a link 206, the "convex side 220 is harder and more textured than the concave side 218" of adjacent link (see paragraph [0091]). As such, Gannoe only teaches a friction enhancing layer that is harder than link material 206 and is therefore incompressible when adjacent links are forced together by locking the cable into the tightened position. Sherts fails to cure this deficiency. Sherts teaches a segmented arm comprising a plurality of segments, a cable extending through each segment, and a device for locking the cable. Sherts fails to teach or suggest a manual device for variably tightening the

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cable. Sherts teaches a toggle 536 that includes toggle arm 552. The toggle arm is rotated to pull cable 516 until the toggle arm is in line with fixed arm 535 at which point the cable is locked into a tightened position by flange 546 engaging inner rim 430 and flange 548 engaging outer rim 434 (see page 15, lines 21-27). The toggle 536 is only capable of locking cable 516 into a locked position with single amount of tension applied to cable 516. Thus, the device of Sherts functions in a completely different manner compared to the present invention, wherein tension can be increased or decreased to a desired amount via a manual tightening device. Sherts further fails to teach or suggest wherein the tightening of the cable compresses a high friction plating material. In fact, Sherts fails to teach or suggest even the presence of a high friction plating material coating on the links.

The Office is reminded that a proper obviousness rejection must teach each and every limitation. MPEP 2143.03 quotes relevant case law.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

As highlighted above, the combination of Sherts and Gannoe in any order fails to teach or suggest each and every element of the invention. Thus, Applicants respectfully request that the rejection of claims 1-3, 5, 9-16, and 20-24 under 35 U.S.C. § 103(a) be withdrawn and the timely allowance of the pending claims.

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**35 USC § 103(a) Rejection over Gannoe et al. in view of Sherts et al. and further in view of Leyden et al.**

Claims 5-8, 18, and 19 stand rejected under 35 U.S.C. 103(a) for allegedly being obvious over Gannoe et al., U.S. Pat. App. Pub. US 2002/0077532, (hereinafter "Gannoe") in view of Sherts et al., U.S. Pat. 5,947,896, (hereinafter "Sherts") and further in view of Leyden et al., U.S. Pat. 6,371,345, (hereinafter "Leyden").

The Office alleges that the combination of Gannoe and Sherts teaches all the limitations of the claims except for specifying that the plating material is softer than the material forming the segments. The Office then relies on Leyden for the teaching of a compressible coating such as a thermoplastic on a ball member to increase frictional resistance between the mating surfaces. The Office Action alleges that one of ordinary skill in the art would combine the teachings "so that less force would be required to arrest relative motion of the segments." Applicants respectfully traverse this rejection.

As stated above, the combination of Gannoe and Sherts fails to teach or suggest at least a manual tightening device for variably tensioning the cable and a compressible coating on the segments. Leyden fails to cure these deficiencies.

Leyden teaches an adjustable mounting device for mounting a portable electronic device such as a CD player in such a manner that allows for convenient adjustment of the position of the portable electronic device. The adjustable mounting device includes a ball member 12 that fits in plunger member 24. The plunger member can be placed into a locked position to lock the portable electronic device into a desired position. The ball member is coated with a compressible coating that reduces the force that must be applied between the plunger member and the ball member to lock the device into place. Leyden fails to teach or suggest a manual device for variably tightening a cable. In fact, Leyden fails to teach or suggest a segmented arm or cable of any kind. Thus, the combination of Sherts, Gannoe, and Leyden in any order fails to teach or suggest each and every element of the invention.

Moreover, there is insufficient motivation to combine the references. As stated above, Gannoe teaches away from coating the segments with a high friction material that is softer than the segment material.

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It is improper to combine references where the references  
teach away from their combination. MPEP 2146  
discussing *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ  
769, 779 (Fed. Cir. 1983)

Additionally, the friction enhancing layer of Gannoe and the compressible coating of Leyden serve completely different purposes and solve completely different problems. The ball member-plunger member of Leyden functions completely different from the adjacent link system of Gannoe. In Leyden, the plunger applies a gripping force around the ball member to prevent the ball member from rotating within the plunger (see Fig. 4b and page 4, lines 4-15 of the specification). In Gannoe, the links are forced together by locking the cable into a tightened position. Gannoe teaches that the friction enhancing layer reduces looseness in the segmented arm in the locked position and therefore reduces sliding between adjacent links (see paragraph [0090]). There is no tendency for the links to rotate with respect to one another. The high friction material acts to prevent slipping. Thus, one of ordinary skill in the art would not be motivated to replace the hard high frictional layer material of Gannoe with the soft compressible coating of Leyden since the layers serve different functions, the prevention of slipping between adjacent members forced together in pure compression versus the reduction of a gripping force necessary to prevent rotation. Hence, there is insufficient motivation to combine the teachings of Leyden with the combination of Gannoe and Sherts to establish *prima facie* obviousness. As such, the Office's rejection fails to teach or suggest each and every limitation of the claimed invention and fails to provide proper motivation for combining the teachings of the prior art. Accordingly, Applicants respectfully request that the rejection of claims 5-8, 18, and 19 under 35 U.S.C. § 103(a) be withdrawn and the timely allowance of the pending claims.

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CONCLUSION

Applicants believe this response to be a full and complete response to the Office Action. In view of the foregoing, Applicants respectfully request reconsideration and allowance of claims 1-3, 5-16, and 19-24. As the application is believed to be in condition for allowance, Applicants respectfully request a Notice of Allowability. The Examiner is invited to contact the undersigned representative should any further issues arise

Respectfully submitted,

DECHERT LLP

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John W. Ryan

John W. Ryan  
Reg. No. 33,771

Craig P. Lytle  
Reg. No. 53,934

Dechert LLP  
1775 Eye Street, N.W.  
Washington, D.C. 20006  
Telephone (202) 261-3375  
Fax (202) 261-3333